THE MARTIN STAR

September 1944

RALPH BELL

Travelin' Man

WITH offices in Omaha and Seattle, Ralph Bell, Coordination Manager of The Glenn L. Martin-Nebraska Company is just about the "most traveling" member of the entire organization. Besides his journeys by rail and automobile, he estimates that he has traveled about 100,000 miles by air since he started with Martin-Nebraska in October, 1941.

A typical Ralph Bell week reads something like this: Monday in Seattle; Tuesday and Wednesday in Akron; Thursday in Detroit; Friday in Baltimore, Saturday at Wright Field; Sunday and Monday in Omaha, and Tuesday night back to Seattle.

Besides serving as Coordination Manager controlling the scheduling and allocation of Government-furnished items such as major structural assemblies, castings, forgings and machine parts, and seeing that everything flows smoothly between Martin-Nebraska and its major subcontractors, Ralph is one of the four members of the B-29 Executive Committee—a group established by the Army for the coordination and establishment of effective points on engineering changes affecting the B-29.

Born December 21, 1909 at Millersburg, Ohio, where he finished grade school and high school, the aviation "bug" didn't bite Ralph until he went to Cleveland to work for the May Company. Hearing much of Glenn L. Martin and his success in the aircraft industry, he decided he would like to go to work for him. He applied for a job and finally landed in Baltimore in the Engineering Department.

Then began a long hard grind of working days, attending and teaching school at night and thinking, talking and living "aircraft" in between times. He attended the Maryland Institute in Baltimore at night in 1930 and 1931 working for the degree of aeronautical engineer. In 1934 and 1935, he attended Johns Hopkins night school taking courses in electrical engineering. Between his job at the Martin Company and his night classes, he had little time for other activity, but still managed to teach night school for seven years in various schools in Baltimore. He taught classes at Baltimore Polytechnic for four years in Shop Mathematics, Blue Print Reading and Sheet Metal Layout and later served as principal of night classes at Patterson Park High school. He also taught aeronautical drawing for two years at the downtown branch of the University of Maryland. Ralph says he learned as much out of the classes he taught as did his pupils.

He started work with the Glenn L. Martin Company June 20, 1930. His first work was in the Engineering Department in detail, layout, grouping and the like, and finally became assistant design engineer. From this point on, his progress was rapid. After his indoctrination in the engineering department, he specialized on electrical and radio design and became group engineer in 1936.

At Baltimore, he spent considerable time on the preliminary design of the Martin Mars and developed preliminary layouts of the hulls and the interior layout of the giant plane. He also took a hand at the development of bombs and did experimental work on the development of "glide" bombs.

When the need for experienced executives arose at the new plant in Omaha, Ralph left Baltimore and came west to work for The Martin-Nebraska Company. His first assignment was in Detroit where he remained until June, 1942, as assistant engineering manager. With offices in Akron and Detroit, he went to work getting Martin-Nebraska engineering into sub-contractors' plants. His success in solving the many engineering problems in Detroit was such that he was called to Omaha in June, 1942 as Engineering Manager of the B-26 Martin-Marauder. He held this position until February, 1943 when he became Coordination Manager on the B-26 program. In July of the current year, he took over the same job on the B-29 Super Fortress.

Ralph now hurries back and forth between Omaha, Baltimore, Detroit, Akron and Seattle serving as a glorified "trouble-shooter" ironing out prob'ems between Martin-Nebraska and other prime contractors, the Army and major sub-contractors. He maintains his home office in Seattle where 45 men and 100 women work with him controlling the dissemination of all Production Engineering data to Omaha and sub-contractors.

In recognition of his work in the development and building of Martin bombers, he was awarded the Purple Martin in 1942.

Ralph married in 1929. His wife, Anne, maintains the family home in Seattle along with three charming daughters, Marcia, 14; Barbara, 6; and Susanne, 3. Though he has nothing in particular against the rest of the country, he would like to settle down and make Omaha his permanent home.

He has two hobbies—one old and one new. He has a fine set of woodworking tools in his home (though he admits he hasn't had time to use them since he left Baltimore.) And since he has been in Seattle, he has developed a keen interest in mountain climbing. His particular objective at present is the top of Mount Ranier. Up to now he has struggled up 9,000 of its 14,408 feet.

THE MARTIN STAR

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You Can Help!

FELLOW MARTINEERS:

We are facing a serious situation. It can be very plainly stated: We do not have enough men and women on our employment rolls to keep abreast of the production schedules set by the Army and Navy. I am telling you this because we need your help.

You have known for some time that Selective Service, finding difficulty in filling its draft quotas, has been drawing heavily on our young men. That is bad enough, but we are suffering from a war-is-over complex on the part of some people who are making the bad mistake of rushing home to feather their post-war nests—all of which is premature, to say the least.

Apparently, these people are unaware that the War Manpower Commission is trying to make it just as tough as possible for those in non-essential pursuits who fail to turn to and help win this war. In other words, those post-war nests are likely to be feathered with some pretty sharp thorns before we turn again to peacetime pursuits. All of this aside from the fact that neither soldiers at arms nor soldiers of production should run out on their country while it is yet locked in a death struggle.

Anyhow, it all adds up to the fact that we are some thousands of people short. Our production schedules have not been cut back. They have been very largely increased lately. As a matter of fact, I fully expect that our responsibilities will *increase,* not decrease, after the fall of Germany.

Now I said we need your help. We do. We are doing everything we can to bring in new employees to bolster our production. But it is hard for those on the outside to realize just how important our job is. It is hard for them to realize that airmen can't fight without a steady flow of aircraft and spares.

But *you* know. And the 23,000 former Martineers who are serving with the Armed Forces also know.

For the sake of your country, what I hope each of you will do is this: Be a recruiting officer for the Production Front. We are proud of the fact that so many families —many of them large families—are doing their fighting with The Glenn L. Martin Company. Are there members of *your* family who would like to join the Martin Family and do their part for final victory?

Then again, you have friends. Are those friends—no matter which sex or what age—satisfied that they are doing all they can for their country? Bring them in. *You* can add one more achievement to your own war record of work and bonds and blood donations. Bring in an applicant!

I make this personal appeal to you, but I do not speak alone for your Company. I speak for your Country as well. America will need its full military and Naval power to win this war. We are within sight of our opponents' goal-line. This is no time to walk off the field. This is the time when we need a full team, fighting with all its might.

Glenn L. Martin

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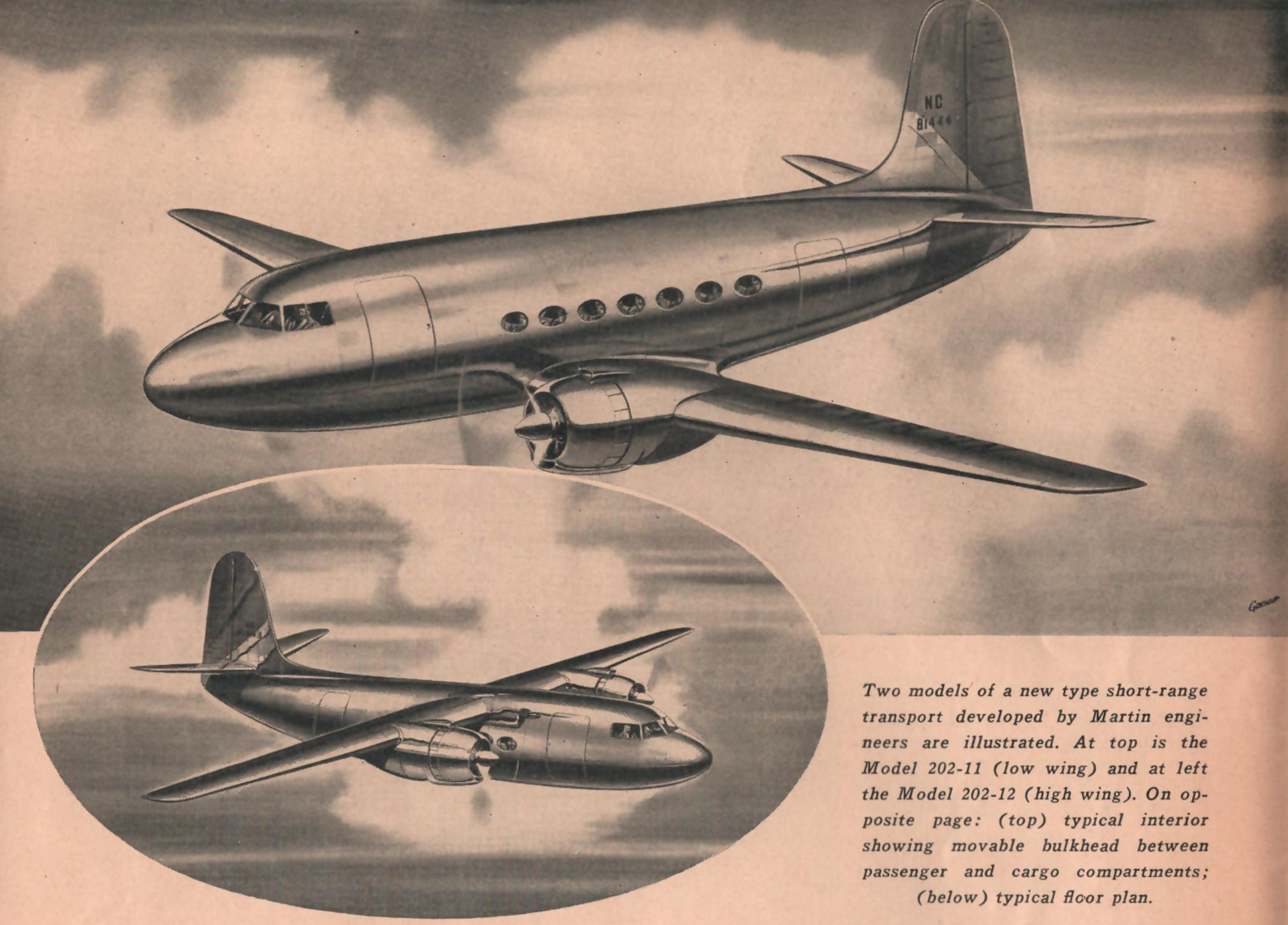


Two models of a new type short-range transport developed by Martin engineers are illustrated. At top is the Model 202-11 (low wing) and at left the Model 202-12 (high wing). On opposite page: (top) typical interior showing movable bulkhead between passenger and cargo compartments; (below) typical floor plan.

Martin Engineers Develop New Transport For Post-war Use; Airlines Show Interest

GRAPHICALLY illustrating the tremendous contributions they are prepared to make to post-war commercial aviation, engineers of The Glenn L. Martin Company have completed preliminary data and drawings on a thirty-passenger, short-range feeder transport to be known as Martin Model 202.

Drawings and data on the new model, together with a detailed engineering study, have been submitted to the Aircraft Requirements Committee of the Air Transport Association, and already the airlines have evidenced considerable interest in the new ship, believed to be the first airplane designed by any company specifically to meet what is known as the ATA-A1 specification.

Faster Than Today's Airliners

A product of the same engineering know-how which produced the B-26 Marauder, A-30 Baltimore, PBM Mariner and other outstanding Martin bombers, the 202 will cruise at 250 miles per hour at 10,000 feet and 60 per cent rated horsepower, or 50 per cent faster than today's standard airliners, carrying 30 passengers or an equilvalent weight of cargo over a 500-mile range at a direct operating cost of only $.154 per ton-mile.

Among the most unusual features of the new model are provisions to permit its rapid conversion from passenger to combined passenger-cargo or all-cargo operation. These include a movable metal bulkhead to separate cargo and passenger compartments which is held in place by standard loading gear and loading gear fixtures; and specially designed seats which are easily demountable with provisions for hanging the backs on the fuselage wall to serve as added protection for cargo while the seats are stowed away in overhead hat racks.

As a passenger transport two alternative seating arrangements are provided, one with all seats facing forward and a second with alternate pairs facing each other. In both versions a luggage storage compartment is provided just inside the entrance so that passengers may bring their own hand baggage aboard and have it available at all times throughout the flight. Both passenger and cargo hatches are lower than truck height to permit ease of loading.

Several Versions Prepared

Several different versions of the 202 have been presented to the ATA including both high and low wing models, a choice of two alternative power plants and a choice of three alternative wing loadings to provide take-off and landing runs of from 2,500 to 3,250 feet. Basic models are the 202-11 and 202-12, low and high wing versions respectively designed around the Wright R-2600 engine, and the 202-15, similar to the 202-11 but designed around the Pratt and Whitney R-2800 engine, which offers a somewhat higher gross take-off weight and one-engine operational ceiling with approximately the same ratio of useful load to

Specifications

Model 202-12 (High Wing)

Passenger capacity	30
Normal gross weight	32,500 *lbs.*
Manufacturer's weight empty	21,842 *lbs.*
Design useful load	10,658 *lbs.*
Runway length for partial engine take-off	2,600 *ft.*
Runway length for landing at sea level	3,250 *ft.*
Wing area	740 *sq. ft.*
Vertical tail area	145 *sq. ft.*
Horizontal tail area	160 *sq. ft.*
Wing section	*Martin Y3C*
Engines	*WAC R-2600-22*
Takeoff power	1900 *BHP*
Meto power	1600 *BHP*
Propeller, 13'-6"	*Hamilton Std. plus blade 6243A*

Model 202-11 (Low Wing)

Manufacturer's weight empty	21,460 *lbs.*
Design useful load	11,040 lbs.
Vertical tail area	150 *sq. ft.*

(Other specifications identical to 202-12)

normal gross weight.

All three of these versions are designed to meet all requirements of an ATA-A1 airplane except the size of airport from which they must operate. Here it was found that the most economical airplane had a wing loading which required a 3,-250 foot airport at sea level. However, with a slight decrease in wing loading, the 3,000 foot airport requirement can be met with a very small change in operating cost. Furthermore, four additional designs provide high and low wing versions to operate from 2,900 and 2,500 foot runways, although at some sacrifice in overall economy.

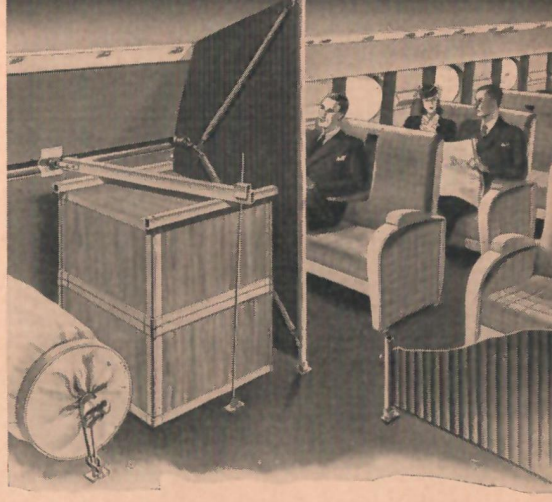
A 30-passenger airplane was chosen as the most likely size for an A-1 transport, but general design parameters and features would remain the same should a smaller airplane be desired. Likewise, while all models but the 202-15 were designed around the Wright R-2600 engine, any one could be modified to take the Pratt and Whitney R-2800 according to operator preference.

In the Model 202 Martin engineers have likewise attempted to evaluate the comparative merits of high wing and low wing aircraft, and both high and low wing versions are offered at each wing loading. The high wing airplane appears to present certain advantages such as passenger visibility ,ease of loading and unloading and reduced ground time, whereas the low wing airplane offers others such as a shorter landing gear and reduced weight empty. To make the high wing version safe in belly landings 200 pounds of structure has been added in the form of longitudinal beams in the bottom of the fuselage, while heavy hulkheads are included under each spar to support the wing in the advent of a forced landing. The net result is a 382 pound greater gross weight for the high wing version amounting to 3.85 per cent of payload plus fuel plus oil. Offsetting this, the high wing airplane will cruise 4 miles per hour faster because of its smaller fuselage frontal area.

Three In Crew

The Model 202 has a design gross weight of 32,500 pounds for all versions except the 202-15 which is 33,500 pounds, and is designed for an average operating range of 500 miles carrying a 50 per cent fuel reserve. The crew consists of pilot, co-pilot and stewardess .

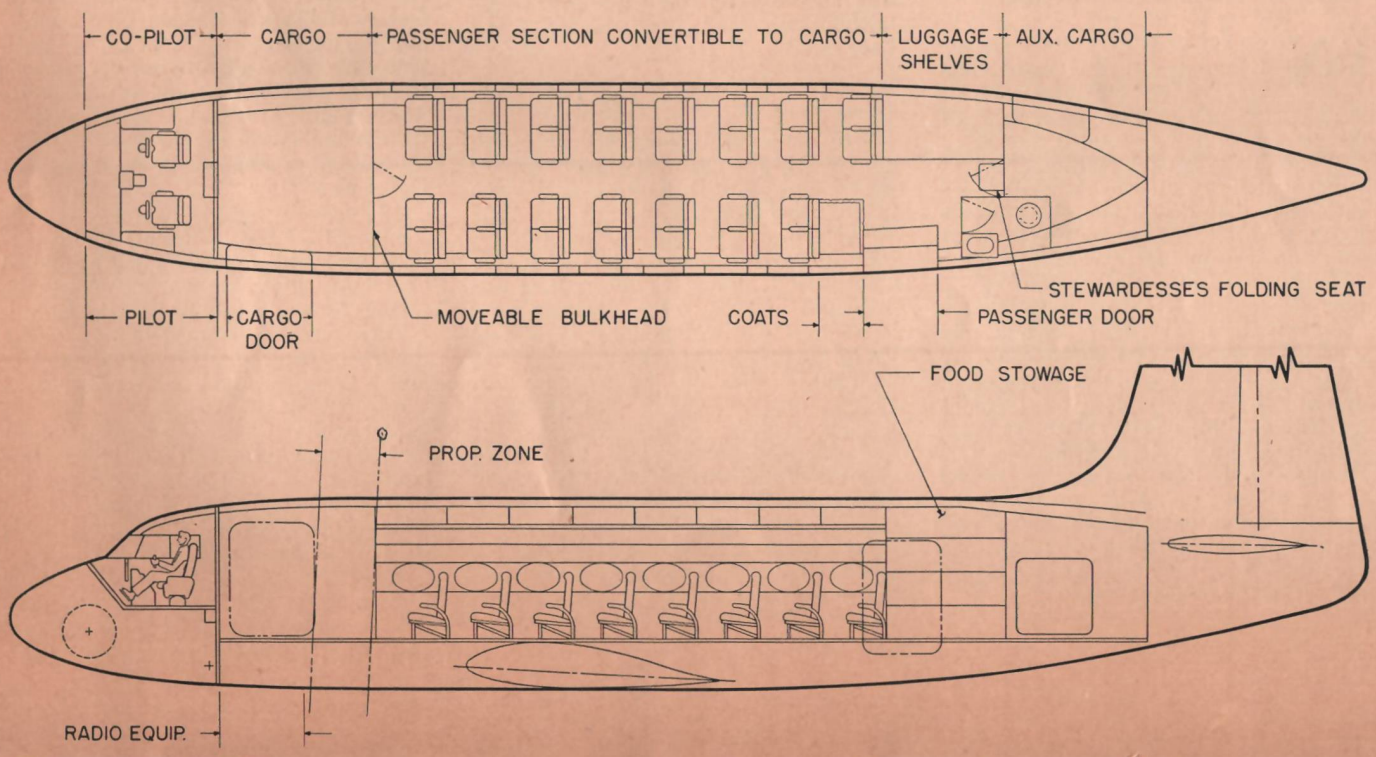
A cost analysis of the new model shows that direct flying costs of the 202-11 and 202-12 operating over a 500 mile range at 60 per cent power will come to $117.31 per hour, divided as follows: fuel $25.40; oil $1.38; plane depreciation, $7.76; engine depreciation $3.07; engine overhaul and repair $6.49; plane and engine ground service $7.20; first pilot, $11.10; co-pilot, $5.60; cabin attendant, $2.29; crew expense, cockpit, $1.02; cabin, $.78; plane insurance, $4.29; passenger service, $33.90. Direct flying cost per mile is calculated at $.519, and direct flying cost per ton mile at $.154.



Similar To B-26

From the production standpoint it is interesting to note that the gross weight and overall dimensions of the 202 are quite similar to those of the B-26 Marauder — in fact, the high wing version bears a striking resemblance to this safest and fastest of the medium bombers; offering a good possibility that production facilities and equipment now used on the B-26 can be readily and rapidly converted to these post-war transports eliminating long lay-offs and cutting retraining to a minimum once the final shot has been fired.

The 202 now joins the Mars as a heavy favorite in the post-war commercial aircraft future book, and just as it was designed to meet Air Transport Association demands for a specific type of transport, so other Martin transport aircraft will be forthcoming from engineering drawing boards to meet other transport requirements and provide the future air traveler with precision machines that only years of military "know how" could possibly produce.



TALE OF THE Ancient Mariners

Official U. S. Navy Photos

Through the porthole of a Martin Mariner, the Florida coast fades into the distance as the huge flying boat takes off for Caribbean ports and South America.

"War Wearies that refuse to get tired," the men of Naval Air Transport Squadron VR-6 affectionately call their PBM Mariners. Some have sunk subs and mostly they're too old for combat, but they're doing a bang-up job as transports and may be setting the future air pattern for our trade relations with Latin America.

"NOR buzzards nor sailfish nor antiquated operating bases shall stay these Mariners of Air Transport Squadron Six from the swift completion of their appointed rounds."

While this is not the motto of VR-6, it might well be, for although commissioned little more than a year ago, VR-6 and its PBMs have already set up a record for safe and dependable transportation unequalled in the history of wartime aviation. During the twelve month period ending May 31, 24,759 passengers and 5,960,757 pounds of mail and cargo were carried a total of 23,719,999 passenger and 2,649,198.19 mail and cargo ton-miles by the big gull-winged flying boats without injury to a single passenger or crew member; and today's schedule of 36 flights weekly in each direction over aerial routes extending from Dinner Key, Florida, to Natal, Brazil, promises that even these figures will be dwarfed before the present year has ended.

Air Transport Squadron Six was commissioned by the Naval Air Transport Service on April 3, 1943, to take over the flying boat operation of Transport Squadron One, and "furnish scheduled air transportation to Naval establishments," a rather large order when one considers that the new squadron started out with two PBMs, three smaller flying boats and a complement of only 63 officers and 163 enlisted men. But this initial lack of equipment and personnel did not deter the men of VR-6. In its first month of operation it carried 541,972 pounds of war important payload to and from Guantanamo, San Juan, Portland, Bight and Coco Solo.

U-Boat Veteran Added

Two more PBMs, one of them a veteran of U-boat front with a confirmed kill recorded on its nose, joined the squadron in May; and total payload was upped 93,770 pounds over the previous month.

Since then VR-6 has exhibited a constant growth both in equipment and performance. Eleven more Mariners have been added to bring its total to 15 of these big 24-ton flying boats. A new hangar has been built at its main base in Dinner Key, Florida, for its exclusive use—previously its only facilities were a portion of the Pan-American hangar now used as a cargo shed and several Dallas huts. And the complement has expanded to 170 officers and 750 enlisted men.

Air Transport Squadron Six's close adherence to airline procedures—closer perhaps than that of any other transport squadron—can be attributed largely to the number of airline pilots and executives holding down key positions in its organization. Commander Canaday and his executive officer, Lieutenant Commander J. A. Thomas, both fall into this category, as do Lieutenant Commander L. E. "Red" Mattraw, operations officer,; Lieutenant Commander A. G. Orr, flight officer; Lieutenant J. A. "Johnny" Fiske, engineering officer and Lieutenant Barnett, Burcham and Gibson, all senior pilots. In the case of Commander Canaday and Lieutenant Fiske, their experience dates all the way back to the first Martin Clippers, Commander Canaday having made the initial survey flights on the Hawaiian and Philippine while Lieutenant Fiske was at one time pilot of the China.

Converted Patrol Bombers

The experience record of VR-6's Mariners in many ways exceeds that of the men who fly them—in variety at least, if not in years. Only two of the fifteen PBMs now aboard left the Martin factory as transport aircraft, the others all having been converted from patrol bombers. One of the latter—6R-408—is the first PBM-3 built by the Martin Company, and its log book lists William K. Ebel, now Vice-President, Engineering, of The Glenn L. Martin Company, as pilot on its first six flights back in February 1942, with William Turner, now assistant Martin operations manager in charge of seaplanes as co-pilot.

Another—6R-406—is itself a veteran of VP-74 and the Battle of the Atlantic, perhaps even the other Mariner piloted by Lieutenant Davis which assisted the famous Nickle Boat in its first U-boat kill.

Three more of Six's PBMs were among the Mariners originally sent to the R.A.F. under Lend-Lease and later returned as war conditions changed.

And while it never saw any combat service 6R-404, one of the original Mariner transports, not only boasts the all time high number of hours for a PBM transport, 2,518.2, but in addition holds the enviable record of never having been really laid up since the squadron was first commissioned.

The scene at Jamaica when passengers are loading for transport to Coca Sola.

An officer of VR-6 recently referred to its Mariners as the war wearies that refused to get tired, pointing out that the fourteen planes aboard as of June 30, 1944, had logged a total of 3,541.1 hours before joining the squadron and an additional 14,463.5 hours as a part of VR-6.

Despite the fact that the PBMs were originally designed as patrol bombers they enjoy the reputation of being both the most efficient and the most comfortable transports of the NATS Atlantic Wing. Stripped of all combat gear, the big flying boats operate at 48,000 pounds gross weight and carry an allowable cabin load or payload of 8,000 pounds on non-stop overwater flights of up to 1,100 statute miles with a one engine safety factor. Since passenger safety and sure delivery of cargo outrank all other considerations with VR-6, no attempt is made to increase the ACL or crowd extra passengers or cargo aboard on the shorter flights. How well this policy has paid off is attested by the squadron's record of having never injured a passenger or crew member.

Just how amazing a job the PBMs are doing as transports is demonstrated by the comparative figures for VR-6 and another NATS squadron operating twin engined landplanes over almost the same routes. With approximately the same number of flights scheduled weekly for each of the two squadrons, during the first five months of this year the PBMs carried 7 per cent of the passengers and 58 per cent of the mail and cargo or 62.4 per cent of the total payload from Miami south.

Superior Comfort

In the matter of comfort the flying boats are definitely superior to the wartime version of the pre-war airliners; for where the latter have stripped off all luxuries to reduce weight and provide added space for cargo, the spaciousness of the Mariner hull has made it possible to install 16 airline seats without interfering with operating efficiency. In addition 24 bucket seats are provided in the living quarters aft and waist compartment to accommodate a maximum of 40 passengers over and above the six-man crew.

While much of the credit for VR-6's success justly belongs to its flying departments, two of the biggest reasons for the squadron's present position in the Air Transportation field are its Engineering Department, headed by Lieutenant J. A. Fiske and its Transportation Department headed by Lieutenant M. F. Riley.

All maintenance work is broken down into shops with each handling a specific part of the airplane. How well this has worked out is demonstrated by the fact that in the year ending June 30 average utilization increased 91.2 per cent, hours flown increased 386 per cent and the number of checks rose 141.8 per cent with only a 65.7 per cent rise in personnel. Today while the amount of maintenance required is about the same as for comparable size commercial airplanes in airline operation, the number of man-hours required to perform this work is substantially lower than in similar commercial operations.

The Transportation Department likewise operates with airline efficiency, and on one occasion a five man crew together with one chief and one commissioned officer handled 41,000 pounds of mail, cargo and gear in a single eight-hour period. The Transportation Department has devised its own loading chart and many of its weight and balance calculations are made with a "wingding" based on the Martin Bal Comp.

Some unusual "kills" besides the submarines they were built to destroy are displayed on the noses of these PBMs of VR-8. In addition to a confirmed sub, one "sank" a caterpillar, another got a swordfish and the third played havoc with a buzzard.

The heart of the VR-6 operation is the maintenance of its schedules, and this has been done despite some of the strangest obstacles ever encountered by any airline operation. On one occasion one of its PBM's was attacked by a South American buzzard while en route from Belem to Georgetown. The result was one dead buzzard and a slight dent in the nose of the PBM.

A sailfish who resented the intrusion of these man-made monsters on his favorite playground was slightly more successful, but met with the same fatal consequences. He launched his attack just as the big Mariner got up on the step for a take-off run with such force that he stove in one of the waist hatches. The departure of that particular Mariner was delayed, but that night the men of VR-6 had baked sailfish for dinner.

Got Its "Cat"

As in every operation of its size, VR-6 has suffered mechanical failures, and it was one of these that gave old 406, the sub-killer, its second kill. During a launching operation, the release shackle on the line holding the Mariner to the caterpillar tractor used for launching wouldn't let go. There was a strong wind blowing, which threatened to dash the big flying boat upon the beach which left the pilot no alternative but to keep on dragging the "cat" behind him. Out in deep water the line was cut and the PBM continued merrily on its way. The "cat" was salvaged and is still in use at Dinner Key. In commemoration of its victory, 406 was soon sporting the "cat's" image together with that of the U-boat on its nose.

First in Martinique

One of the high spots in VR-6's career was its selection to run the first scheduled operation into Martinique following its capitulation. A survey flight was made on September 9, 1943 to carry in some French sailors who were going to bring out a warship, with Commander Heist, now assigned to VR-9, and Lt. Commander Orr, inaugurating scheduled service with old 406, the sub-killer, on November 30 of that year. Today weekly flights are made in and out of the French possession.

Essentially an emergency transport service, any doubts as to VR-6's importance to the war effort are quickly dispelled by a glance at its passenger and cargo manifests. The majority of the former are servicemen headed for their posts of duty, or returning home for a well earned leave. As one sailor on his way home for the first time after two years at a South American outpost put it, "Take away those '6-R' Mariners, and they'd hear the thud of Yanks' morale dropping as far north as Washington."

(*Continued on page* 16)

From the cavernous hull of a Martin Mariner come vital supplies for the U. S. Naval Base at Coco Solo. Medical supplies and mail are included.

"Minich Is My Co-pilot"

The following story was sent The Star by Roger Ward, head of the Martin service organization in England. It's an unusually fine saga (Roger has sent plenty of others) of a Marauder and its crew in action.

By Lt. Allan F. Minich, U. S. A. A. F.

WHEN Don Allen told me he might try to write a book about his experiences in Marauders over Western Europe, I suggested he call it "Minich Is My Co-Pilot."

"Why not?" he replied. "That's as good a name as any. Besides it's not the name that counts. It'll be the stuff inside."

"Like what?" I asked, trying to get a rise from the 22-year-old captain and flight leader from Grand Rapids, Mich.

"Like that day near Paris, that trip from which we almost did not return."

I lost my appetite for joking at the mention of that trip. Leading the formation that day we were hit hard before we reached the target . . . the damage list would resemble a Sears catalogue. The serious hits were the slashed gas line; a shot-out hydraulic system; a heavily damaged stabilizer, giving severe rudder vibration; and about 100 other hits in the fuselage.

Pilots flying on our wing said they could see Marauders on the opposite side of us through the holes blasted in our fuselage.

We were over a railway bridge crossing the Seine river, our aiming point, when it happened. I was in the radio compartment, having surrendered my seat to Capt. Johnny Littwin, the navigator, who was to lead us into the target. Lt. Joseph C. Dick, the bombardier, released the bombs on the target.

Just as he dropped the eggs, I felt a hot slash in my hip. I looked out the window and saw the left engine trailing smoke. Flak pellets beat something resembling a Gene Krupa solo under the fuselage. I honestly thought the war was over for our crew.

Flares Set Afire

Flak had scored a bull's-eye on some flares and set them on fire. Our clothes were soaked with gasoline but we didn't stop to consider the danger of fire. We put out the blaze and returned to the bomb bay to find gasoline running out of the hole as fast as a person could pour it out of an inch nozzle. We finally patched it with a couple of strips from a dhingy radio covering.

The "bail out" order had been given. I went back to the cockpit to hold the ship as steady as possible while Allen put on his 'chute.

"It's funny," Allen said, "how the ship straightened out after the bomb bay doors were opened. The controls caught as by magic and the terrific vibration we were getting from the damaged rudder stopped suddenly."

"We should have jumped anyway," I said. "We knew we could never land the ship and we took a chance in a million when we decided to fly the cripple back to England."

"I know. I used to think the easiest way out of a battered ship was to parachute immediately. But after looking at the isolated country below, I decided to fly it back. Besides, you would have missed out on the invasion show if we'd bailed out."

We thought the gunners were out. To make sure I headed aft. The tail gunner was coming forward. He said S/Sgt. McWilliams, the engineer-gunner, had been badly wounded by the first burst of flak. I found Mac lying under the top turret with his leg almost shot away by flak.

He had been administered morphine and a tournique had been applied. I went back several times while we crossed the Channel. The kid was game. I always gave him the "OK" sign and he returned it every time.

Just before we reached the Channel we got another burst for five minutes of flak. Flying straight and level we gave Jerry a target as good as the side of a barn. Fragments hit us again and again. More hits on the right engine, the tachometer and temperature gauges.

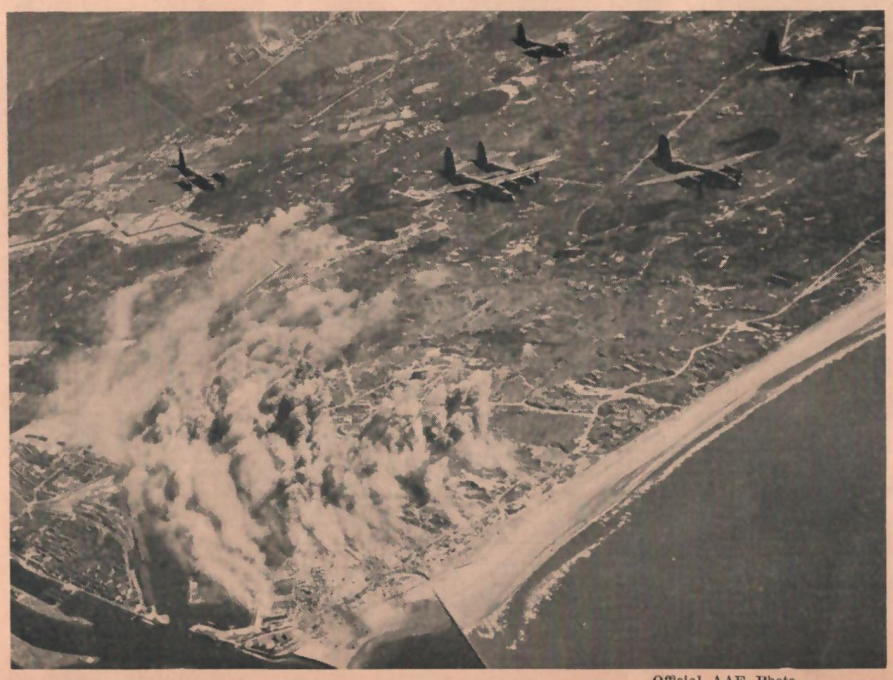
"Bail Out" Order Given

I don't believe the captain's voice ever sounded sweeter than when he gave the "bail out" order as we reached the English coast. We were at 11,000 feet. The gunners jumped but McWilliams was under the impression we were going to crash land. I told him we were all bailing out due to the fumes and leaking gas. The ship would explode instantly on landing. He finally consented to go. He died seconds after he hit the ground after being able to pull the rip cord and float down.

"It wasn't easy getting out of that cripple," Allen told me later. "The plane must have been on its side. I stepped on the window in the radio compartment and felt as though I could claw my way out. I pulled myself through the door leading to the bomb bay and fell out of the plane."

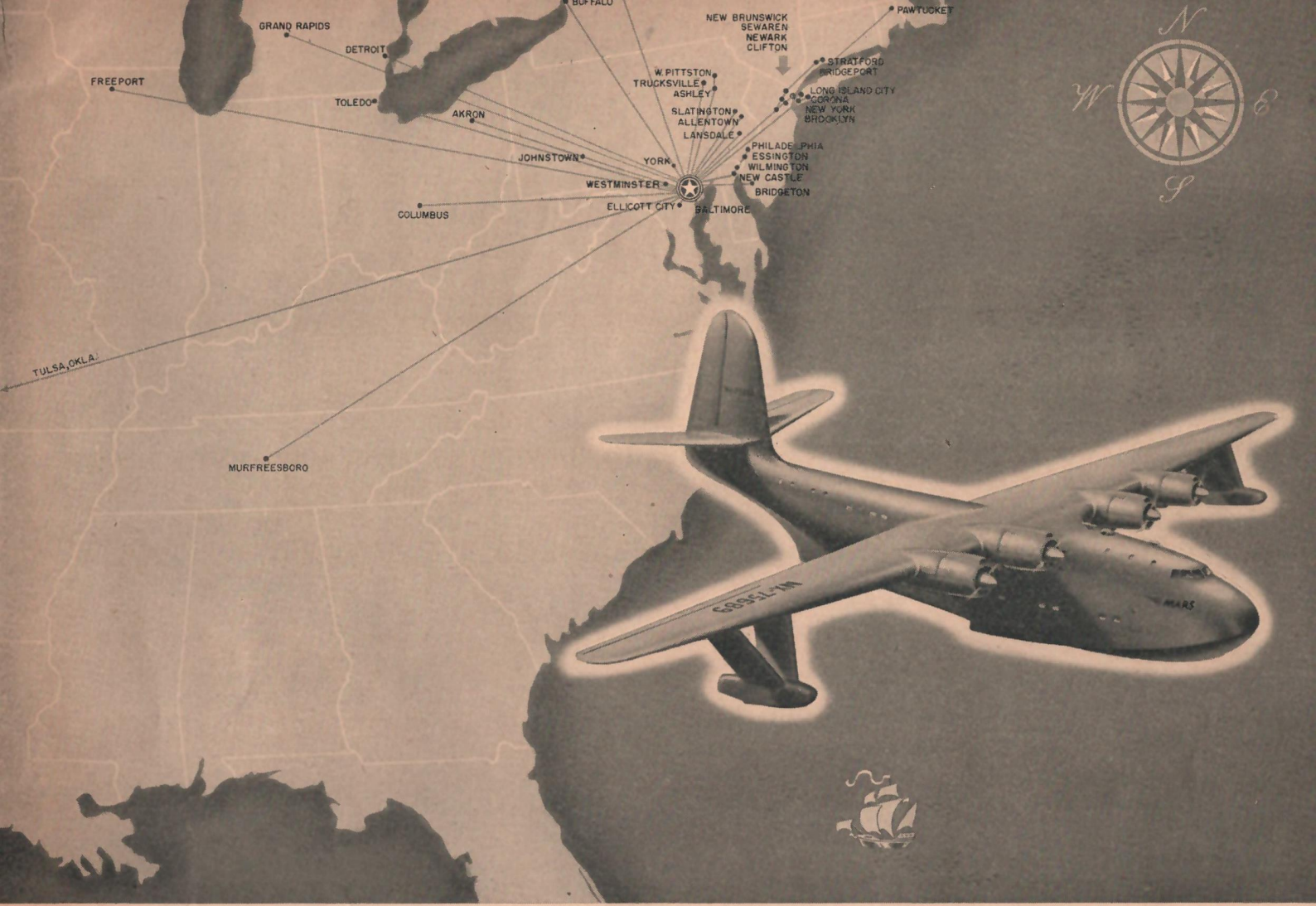
Allen touched the ground and the vigilant home guard, thinking him a German paratrooper, took him to the police station.

When he eventually got to the base, McWilliams' dog was waiting for his master. Mac's dog, which always waited around the crew room for his return, used to ride with him wherever he went on the handlebars of Mac's bike. The boys have since taken him back to the squadron area and they ride him on the handlebars of their bicycles. Mac would have liked that.



Official AAF Photo

MARAUDERS PAY RETURN VISIT. Nazi E-boat pens at Ijmuiden were left a mass of flaming wreckage when Martin Marauders paid them a visit recently. Just one ship of the 350 in the mission was lost.



Map by Gordon Colket

The JRM Mars Takes Shape

SIXTY nine manufacturers in 37 cities spread out over 12 states are busily turning out sub-assemblies for the JRM Mars—world's largest production airplane, and several more will be added in the near future as production of 20 of these 72½ ton Navy transports goes into full swing at the Baltimore plants of The Glenn L. Martin Company.

Sub-contracted items for these super flying boats, sister ships of the famous Mars which is now ranging over the Pacific for the Naval Air Transport Service, run all the way from wing tips, flaps, control surfaces, floats, beaching gear, exhaust stacks and interior equipment to ladders, stairs, bolts, hinges, fittings and a wide assortment of small machined parts and assemblies. Seats for pilot, co-pilot, radio operator and flight engineer, tables for the navigator and radio operator and prop de-icer tanks and water tanks for the aft toilets, cowl flap operating drives and control columns are likewise included in the vast program which includes three well known aircraft companies—Spartan, Bellanca and Kellett—in addition to the Mars' actual designer and builder.

Largest of all the sub-contracts is held by the Spartan Aircraft Company of Tulsa, Oklahoma, only sub-contractor located west of the Mississippi, which is building wing-tips, ailerons, stabilizers, elevators, fins, rudders, flaps and tabs for the giant passenger and cargo transports.

Far across the country in Newcastle, Delaware, the Bellanca Aircraft Corporation has mobilized its facilities to turn out wing floats and float struts, while in Bridgeton, New Jersey, the Ferracute Machine Company is turning its energies to the massive beaching gear on which the big boats will rest between flights.

Exhaust stacks for the JRM's powerful engines are coming off the production line of the National Radiator Company, Johnstown, Pennsylvania. The Warren MacArthur Corporation of New York is supplying seats for the pilots and other crew members, while tables for the navigator and radio operator are in the works respectively at the Essington Metal Works, Essington, Pennsylvania, and Castaloy Corporation of Detroit.

Control columns and quadrants are being assembled at Ritter Company, Inc., Rochester, New York; ladders and stairways at Kellett Aircraft Company, Philadelphia, and Charles T. Brandt, Inc., Baltimore. And down in Murfreesboro, Tennessee, Air Utilities, Inc., sole non-Maryland representative from south of the Mason-Dixon Line, is fashioning crews' lockers for the "flying Liberty ships."

Machine shops predominate among the sub-contractors, what with bolts, spar splices and fittings for hull, center wing and almost every other part of the airplane predominating among the sub-contracts; but there are companies on the list whose peace time output is far removed from aircraft production.

Sixteen of the 69 sub-contractors are Baltimore neighbors of the Martin Company, with Philadelphia holding down second place with 11, and New York City third with 5 or 6 if the one Brooklyn representative is included in its total. Statewise, Pennsylvania is top with 20 companies participating in the Mars' production program as against 18 for Maryland, 12 for New York, five for New Jersey, three each for Ohio and Michigan, two each for Delaware and Connecticut, and one each for Tennessee, Rhode Island, Illinois and Oklahoma.

All told, one fourth of the states in the union are today contributing to the production of the world's greatest flying boat. And tomorrow these same Mars and their commercial sister ships will reciprocate by providing these and all the other states together with many foreign countries with the most economical and efficient air transportation the world has ever known.

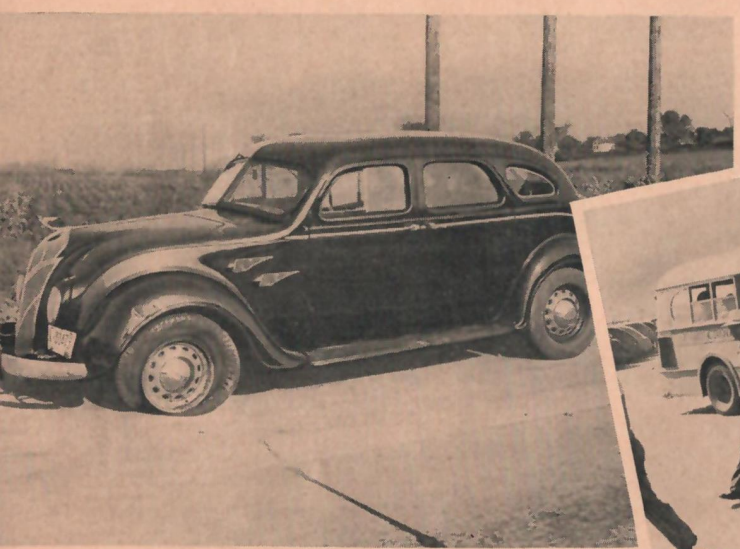
The inter-section at Twenty-fourth and N Streets—transferring point for the Martin-Nebraska bound bus.

Cars should be kept in tip-top condition. Here a Martineer gets some help.

Office of Martineer problems

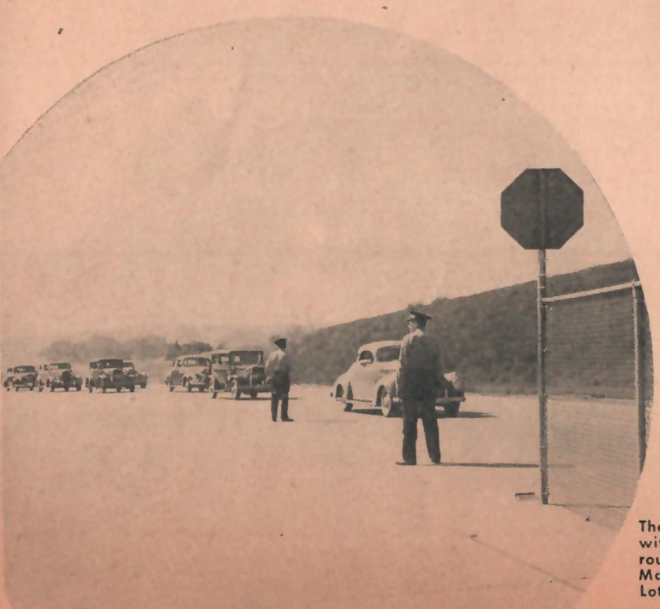
TRANSPORTATION

One problem among all Ma tion. Everyo rapher and f fronted with t page are typ route from On Plant as Map work.



An all too-familiar sight during hot weather The driver and passengers have probably gone on to work and will pick up the car later.

Out of the bus and private cars to work.



The West gate with cars en-route to the Main Parking Lot.

A vehicle that is "light" on gasoline.

Outside Rationing and Transportation where
rs are helped with their transportation
.

Driver picks up passengers on the way to work.

A bit of tough luck along the way.

PROBLEMS

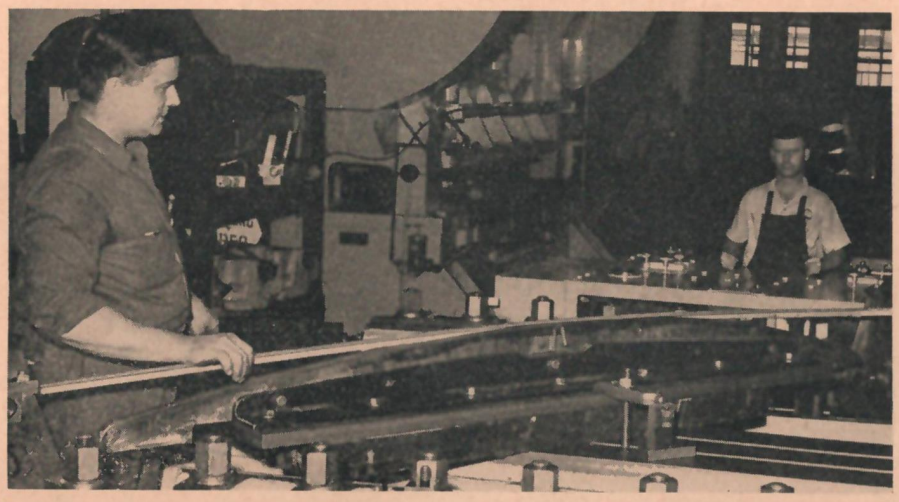
that is of common concern
rtineers is that of transporta-
ne from welder to stenog-
rom pilot to riveter is con-
his question daily. On this
ical scenes taken along the
naha to the Martin-Nebraska
tineers travel to and from

Executive parking lot and buses loading passengers.

Passengers wait while the driver works late.

Martineers line up for the city bound bus.

ain Parking Lot.



Walter Spier watches the Stretching Press form a part from a piece of angle material. Arthur Carter operates the press from the electric control cabinet.

Stretching Press Does A Real Job

Located in the midst of a host of amazing machinery of the Machine Shop in the Sheet Metal Department at Martin-Nebraska is the electrically-powered and operated Stretching Press daily turning out parts for the Martin-Nebraska built Super Fortress.

Unlike the gigantic Hydro with its 3500 tons pressure, which is also in this department, the pressure of from 15 to 130 tons on the Stretching Press is upward rather than downward. It derives its great pressure from a hydraulic pump operated by electricity which is directed into it by six motors—two of which are connected directly to the pumps.

While the hydraulic Stretching Press does not replace the drawing press or power drop hammer, it has a particular application in shaping fuselage coverings, engine coverings, wing and tail units and undercarriages.

Parts are formed with wood and steel form blocks. There are eight skin-form blocks for making various parts and two wood blocks for shaping stainless steel sheets, measuring 48 by 72 inches. In making parts, the metal of various thicknesses is placed across the press and fastened on the sides by air clamps. Each gripper, or air clamp, contains two pneumatic cylinders which exert a pressure of 150 pounds, which close the clamping jaws in a fraction of a second and produce a uniform clamping pressure the full length of the metal. The clamps are so constructed that the greater the pull on the metal during the stretching process, the tighter the grip. When the operation is completed, the air is released from the pneumatic pistons and the metal is released from the clamps.

The metal to be stretched or formed into parts rests on a "ram" or heavy steel platen in the center of the machine on which rests the form or block against which the metal is to be stretched. The raising of the "ram" or platen causes the metal to press against the form and take shape.

The Army-Navy "E" banner with its new white star proudly flies under the Stars and Stripes at Martin-Nebraska.

Martin Builds Nest In Abandoned Jig

In these days of housing shortage and the need of conserving all facilities and materials, the three mother birds that raised broods of youngsters in a nest built on an abandoned jig near the west parking lot, show conclusively that even the birds at Martin-Nebraska are real Americans. The nest was built early last spring and has housed three feathered families.

First, a mother robin aided by her mate, built the nest and set up housekeeping. Next came a brown bird of unknown lineage. Most Martineers who were asked to identify it were unable to do so, not being ornithologically inclined. However, from descriptions given, it was probably a thrush. She too hatched her brood and watched over her youngsters until they were able to fend for themselves. She was the quietest of the three tenants and crowds looking into her nest didn't interest her in the least.

The last tenant to take possession of the nest was—of all things—a martin. To choose her home on the Martin-Nebraska reservation on the top of a jig that was formerly used in assembling Martin-Nebraska Marauders displayed good judgment indeed. She immediately became a true Martineer, on the job day after day with no absences or time out. Her family of four has now left the nest.

Notwithstanding the fact that thousands of Martineers on all three shifts passed these mothers each day, they were never disturbed.

Orange Blossoms

Doris Waterhouse (Tool Engineering) to S2/C James Moore, August 2 ★ Lillian Larson (Contract Section, AAF) to Pvt. James Woodruff, July 29 ★ Ann Van Denbark (Office) to Ensign Bruce Corn, August 3 ★ Catherine Sokolik (Purchasing) to Joseph Regner, August 5 ★ Jane Pierce (Sheet Metal) to Jerry Tobias (Tool Engineering) July 7.

Newest addition to the Martin-Nebraska family of Martineers is a mother Martin and her four youngsters who are the last of three families who have lived on an abandoned B-26 jig on the way to the parking lot.

Raymond Trane, Tool Engineering, served in the Nicaraguan Campaign, in the Mexican Campaign, and in World War I as a Chief Petty Officer.

Martineer Served In Many Campaigns

In this war, it's home-front fighting instead of high-seas battling for one Martin-Nebraska tool engineer, Raymond Trane, who is a veteran of the Nicaraguan Campaign of 1912, the Mexican Campaign of 1916 and 1917, and of World War I.

For eight years Trane served in the United States Navy as an Acting Chief Petty Officer, and he served on one of the oldest ships in the Navy—a ship in Admiral Dewey's fleet—the U.S.S. Raleigh.

Trane heartily believes the expression "Join the Navy and See the World." During the years he served in Uncle Sam's Navy, he made trips to almost every port of any importance from Alaska down the west coast to Ecuador, down the east coast from Gardner's Bay, Main to Montevideo, Uruguay, and in the Eastern Hemisphere, he took trips down the west coast of Africa, through the Mediterranean Sea, and the waters of the East Indies.

According to Trane, in World War I, the United States lost many ships such as destroyers and cargoes, but so efficient was its convoying of troops that it did not lose a single troop ship.

Every sailor has one experience he calls his "most exciting," and Trane is no exception. His experience took place off the coast of Dakar, Sengal, Africa, the day his ship battled it out with a German submarine. Trane was on the upper-deck manning guns when his crew dropped the depth charges, and finally, when the American Navy men saw oil starting to come to the ocean's surface, they knew they had hit their target — that they would be safe.

Trane now has a nephew serving in the Navy in World War II. Conrad Schmits is a hospital apprentic 1/C.

"System" Used on Washing Dishes at Martin-Nebraska

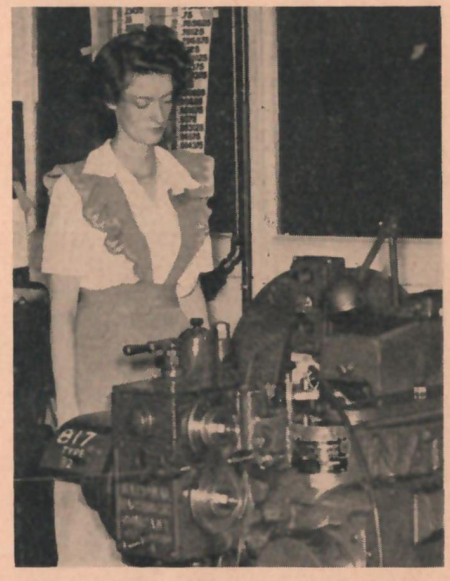
Though far from the most interesting job in the world, dishwashing is one that is of concern to practically everyone, especially if someone figures out a simpler, more efficient way to get the tedious task accomplished.

Those wanting to see the efficiency of team work should watch the cafeteria dish washers operate in the cafeterias at the Main Assembly Plant, Modification and DeGink. When they are in the midst of a "run" at lunch time, they work with a precision and coordination of effort that really gets things done. As an example, in the dish washing room of the west cafeteria, dishes are washed with the systematic movement of the best functioning production line.

There are 10 "runs" at lunch time in the Main Plant cafeterias. A "run" occurs when the various departments come into the cafeterias during their schedule lunch period. The first run begins at 11 a.m. and staggered periods continue until 1:30 p.m. The dish washers must have a supply of clean dishes on hand to accommodate each group. Made up of several hundred Martineers, each will use on the average of four dishes, one glass, three pieces of tableware and one tray. These items multiplied by several hundred each on every "run," give an approximate idea of how fast the dish washers must work to keep ahead of the demand for clean dishes.

Each utensil used at lunch goes through several operations before it is used again.

During these "runs" the dishwashers have no time for false moves. Their "top speed" pace continues from 11 to 2 p.m., when the rush ends. However, keeping a supply of clean dishes is not all the dishwashers do. Each morning they clean, disinfect and scour the aluminum sinks over which they work, along with every piece of apparatus in the dish-washing room. This work is divided between three shifts.



VIVIAN HOUSE

Another Martin-Nebraska "first" is Vivian House, the first woman to be selected to learn to operate the two automatic rivet machines in Metal Bench and Welding Department.

The machines can handle aluminum wire—seen at the left of the above photograph—up to one half inch and can knock out 200 rivets a minute each. All the "D.D." or "ice box" rivets and the "A.D." rivets are manufactured on the machines. Other types of rivets can be made when necessary.

The dish washing room in the west cafeteria. This pile of dishes, bottles, trays and glasses will soon be clean. Clara McKeon prepares a stack of trays for cleaning. Emily Rosicky and Mary Snyder clear away the dishes coming into the window. Tomacita Stebbins washes bottles and glasses.

Sally Agnew watches the Dispatch Board in Internal Transportation that shows the location of personnel and equipment every minute of the day. Neva Hill writes the dispatch orders.

"Keep It Moving" Motto of Internal Transportation

Government statistics show that a trainload of equipment and material for the armed forces moves every four minutes over the lines of the highly organized railroads of America, but here at Martin-Nebraska Internal Transportation maintains a daily record of moving a load of equipment and material every 51 seconds.

For explanatory purposes, a movement of equipment or material by the Internal Transportation department is called a "dispatch" and each day, 750 or more "dispatches" are completed. They cover a multitude of jobs from moving railroad cars filled with material, from the Main Assembly Plant to the warehouse in Omaha, to getting an Air Express package weighing a few ounces from the Shipping department on a plane schedule to leave the Municipal Airport within 30 minutes.

"Dispatches" are divided into three groups: (1) intra-plant, (2) intra-reservation, and (3) from the plant to Omaha and Omaha to the plant. And for every "dispatch" there must be a written record covering the materials that were moved, where the "dispatch" originated, and its destination. Keeping the records as does Neva Hill, who has a son in the service, is a day's work in itself. More than 100 employees and 80 pieces of power equipment and 60 trailers and dollies are needed to carry out the "dispatches" and do the numerous special jobs of moving. This equipment was put to good use recently when office equipment and supplies were moved from the Main Plant and Camouflage building to the new Engineering building.

The importance of knowing the exact location at every minute of the day of all personnel and equipment is paramount, for materials and supplies must move quickly and with the least amount of lost motion. The Dispatch Control Board, located in the office of D. H. Frye, foreman of Internal Transportation does this job. With its many colored discs and tabs, representing personnel and equipment, and with a print layout of the plant, Dispatchers Neva Hill and Sally Agnew maintain a visual picture of where every person and piece of equipment is located at any moment. To augment this is the department's own "Country Telephone System" of nine stations originated by Mary Skillman, with locations throughout the plant. This system keeps the employees in constant touch with the Dispatchers and the office. If trouble occurs, such as break-down of equipment, or when a "dispatch" is completed, the information is immediately telephoned in to the office.

While a fine spirit of cooperation has been developed between the Transportation department and the Plant departments, occasionally some one will take the fact that Internal Transportation is a "service organization" too literally.

On one occasion, according to Foreman Frye, a feminine voice asked that a Transportation employee be sent up to wash an ink well, then transport it to be filled and returned to her desk. Another asked that a man be sent to the Hangars to pick up keys, then to go to a designated building, unlock a door and return the keys. These extremes are few but contribute to the 1,000 telephone calls a day which are answered by Helen Rombough, clerk in the department. Each call must be given strict attention and systematic consideration that is routine.

Martineers Learn Uses of Oxygen

Leon Steckel, sub-foreman in Final Assembly Inspection, who recently taught classes on oxygen to all three shifts at Martin-Nebraska, was fully qualified to instruct these classes as he had just completed a special course in oxygen at the Aero Medical Laboratory at Wright Field in Dayton, Ohio.

According to Steckel, 37 representatives throughout the country were selected to take this special course at Wright Field. Out of that number, only 11 persons, including Steckel, passed the physical requirements permitting them to enter an oxygen chamber having the same pressure as that at a 30,000-foot altitude. The chamber was a cylinder-type cabin with port holes at either end so that spectators outside the cabin could see the reactions of the men inside.

The oxygen regulator used is so designed that at sea level to approximately 30,000 feet, it mixes the outside air with the pure oxygen in the ship's distribution system to supply the required amount for each individual need.

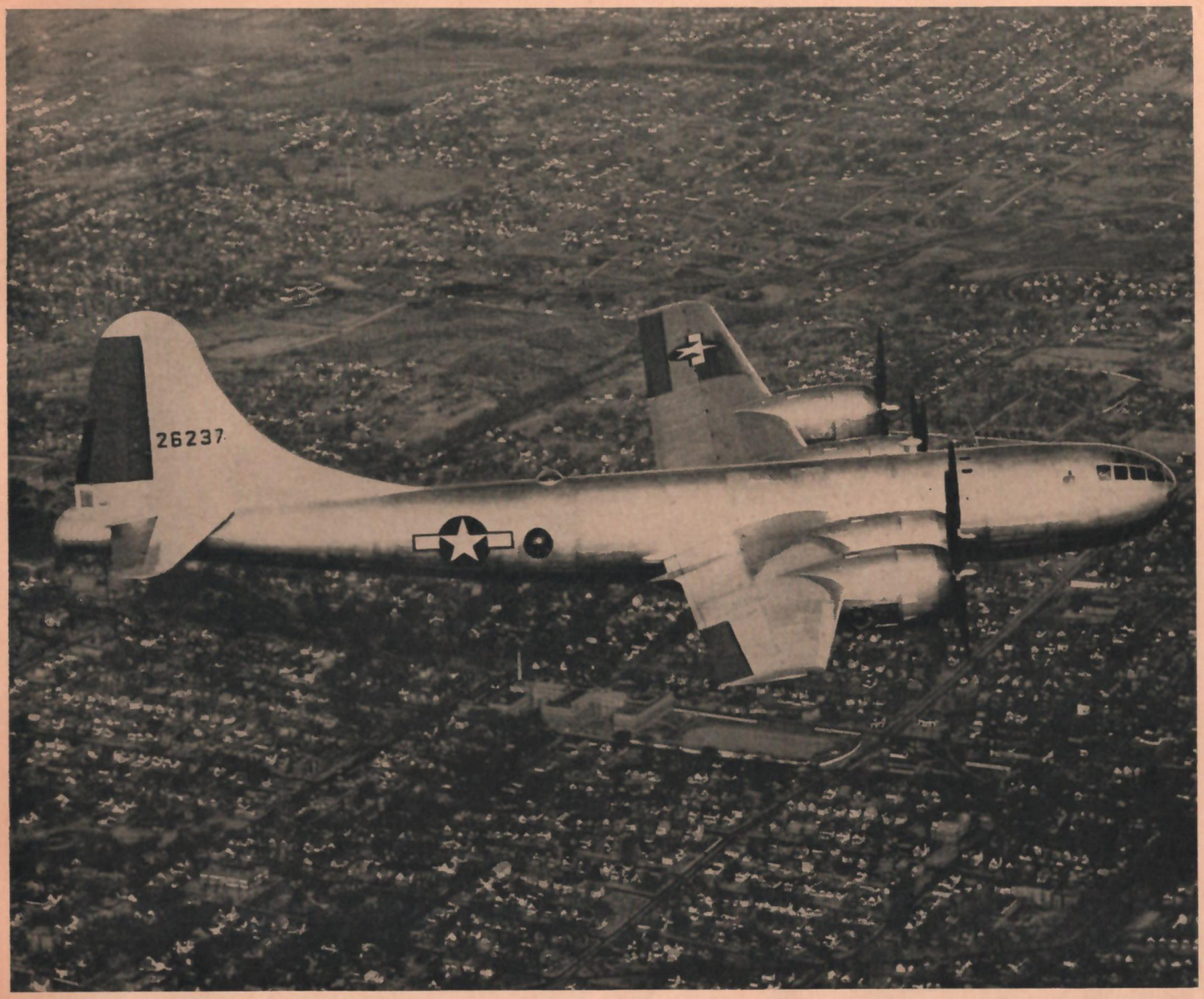
At Martin-Nebraska, Steckel conducted his classes one hour each day for five days, and pointed out the composition of the air and its relation to the human body. Supplementing this material were films on high-altitude flying and oxygen equipment—its type, use, and servicing.

LEON STECKEL

First-shift employees who took the course were Bernard Kendrick, Clyde Sailing, Roy Kleemeyer, Cecil Johnson, Eleanore Youts, R. D. Shook, R. Kehrman, Charles Rumley, Sue Dow, Marvin Leander, and Glen McClure.

Second-shift employees: Lewis Arms, Wilbur Beismer, John Brown, Robert DeVoe, Opal Hayden, C. A. Bice, S. L. Keen, Loyal English, Herbert Frede, F. W. Holliday, Al Rulla, Herbert Boles, Vernon Williams, and Floyd Oberle.

Third-shift employees: L. C. Enearl, A. W. McKenzie, Robert Blankenbeckler, J. A. Johnson, Donald Horner, John Hunt, Charles Vickers, and Edna Keer.



Martin-Nebraska Built B-29

The above photograph was snapped by the Photo Art Department as a B-29 Super Fortress flew over the City of Omaha. It is thought that many Martineers would be interested in a picture of the plane that is being turned out today by the Martin-Nebraska Company.—(The Editor)

Personnel Administrators at the Plant and at Modification act as counselors to all Martin-Nebraska employees. The administrators are, from left to right, first row: Aileen Metzger, Marjorie Washachek, Edna Warren, L. Edwards, Lucille Kabat. Mrs. J. C. Henely, Mildred Newcomb, Leona Pawol, Maybelle Gorder, Lucille Davis, Eileen O'Brien, Mary J. Eklund, and Marian Overbo. Second row: E. F. Fisk, Edytha Cowling, Helen Ovo, P. Abboud, David Curtis, J. Neuberger, E. Delafield, A. Neuberger, Mary McMullen, J. Wambold, J. Reed, R. Rankin, A. Bailey, H. Howard, Leone Milne, J. L. Irwin, and C. O'Brien. Third row: C. Byrd, J. Doyle, L. Gobel, J. Wallace, J. Friis, H. Bennett, L. Cardwell, D. Gibbern, T. Knuckles, A. Willeford, O. Dillingham, C. C. Donoghue, and F. Graham.

STORK DEPARTMENT

Mr. and Mrs. J. Priesman (Final Assembly) a girl, July 18 ★ Mr. and Mrs. Harold Nordeen (Tool Engineering) a boy, July 21 ★ Mr. and Mrs. Sylves Dam (Tool Engineering) a girl, August 6 ★ Mr. and Mrs. Hoyle Hedum (Industrial Engineering) a boy, July 31, ★ Mr. and Mrs. C. A. Blaney (Production) a girl, July 27 ★ Mr. and Mrs. Vernon Townsend (Group Engineering) a girl, July 31 ★ Mr. and Mrs. Robert L. Nance (B-29 Assembly School) a boy, July 14 ★ Mr. and Mrs. Norman Miller (Education, Modification) a boy, August 7.

The weatherbeaten face of a Navy Chief Petty Officer breaks into a wreath of smiles as he pauses for a quick "blow" while directing the unloading of a Mariner at the busy Miami terminal.

Ancient Mariners

(*Continued from page 7*)

Mail for the boys and important documents pertinent to the running of the war comprise about 50 per cent of the PBMs cargo, but the other 50 per cent has ranged all the way from a kitchen for a high ranking officer in Martinique to pyrethreum seeds and ipicac cuttings flown from Brazil to Miami and thence back to Coco Solo for trans-shipment to Guatamala where they were planted. A particularly heavy cargo item recently has been war ballots for the coming presidential election.

On northbound flights strategic materials have been a major item of cargo and Six's PBMs have brought almost a quarter of a million pounds of beryllium, tantalyte, mica and similar materials to American war plants in the last 12 months.

While VR-6's operation is essentially a matter of schedules, and the squadron's greatest pride has come from the way in which these schedules have been maintained, some of its most memorable experiences and unusual performances have arisen out of special emergency flights.

Invitation From Duke

One of the high spots was the day when a VR-6 PBM—fittingly enough old 406, the sub-killer—was detailed to rush the Duke of Windsor to Nassau for an important government conference. The Duke stated that he enjoyed his flight tremendously, and by way of showing his appreciation, invited the crew to partake of refreshment on the palace lawn.

While VR-6's sole mission at the present is to provide vital wartime transportation, its present operations point to the important role the PBMs in particular and flying boats in general seem destined to play in the future development of South and Central America. According to the pilots who have been flying the big aerial freighters on their wartime missions, there is practically no center of commerce or population in this area that does not have facilities for landing and taking off flying boats the size of the Mariner or larger.

By the way of example, they point to the fact that at present VR-6's PBMs are operating from rivers, inlets, harbors and in some cases the open sea, and that in only two cases does the operation even approach the marginal classification. One of these is in Guadaloupe where the deep water landing area is very narrow and only about 3,000 feet long with cross wind landings and take-offs the general rule. Previous commercial operators used to consider this a marginal operation with much smaller seaplanes, but VR-6 has experienced comparatively little difficulty in maintaining a weekly schedule in and out of Guadaloupe with its big PBMs.

Passengers leave a NATS Mariner at Dinner Key, Miami

Fears Proved Groundless

The other trouble spot is Port of Spain where rough water conditions and cross wind ground swells ranging to 4 feet in size were once thought to make this an unsuitable point for seaplane operations. But the sea worthiness of the big Mariners has proved such fears groundless, and today VR-6 maintains daily schedules in and out of this all-important base. As a matter of fact, squadron records show that since VR-6 was commissioned there has not been a day that PBM operations have had to be suspended due to rough water.

By way of contrast to its excellent natural facilities for flying boats; South America's land plane facilities are few and far between and have had to be constructed at great expense. Not only does this limit the land plane service to a few major centers, but it throws the safety balance heavily on the side of the flying boats which are almost always in range of an emergency landing area in case of fire, engine failure or some other unexpected catastrophe. And if any other proof of the safety of flying boat operations is needed, it can be found in VR-6's record—not a single passenger or crew member injured in nearly 24 million passenger miles of over water flight.

Top left: Passengers leave a Martin Mariner for lunch near Kingston, Jamaica, while the plane is refueled. Lower left: The crew of a Mariner enjoys a Jamaican lunch under a temporary shelter. Below: Looking forward toward the pilot's cockpit while a huge Mariner wings its way over the sea with a vital cargo of war material.

★ ★ ★

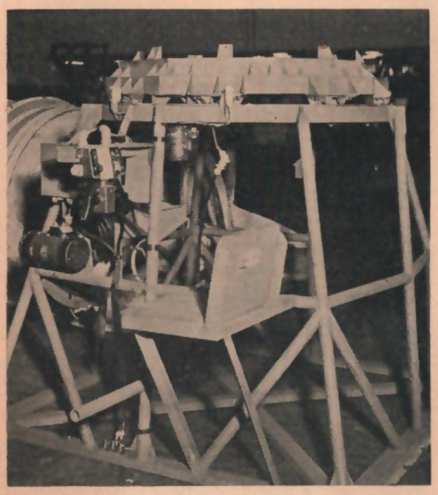
Speed Merchant

Ed Castelloe, foreman of Inspection Shipping, Army Division, set records at Wake Forest College for the 100-yard dash (9.8 seconds) back in 1940. He was track captain and did the 220, high jump, broad jump and pole vault, too. He has worked at Martin's for three years.

Training Stand Will Teach Turret's Use

A new training stand which mounts a standard Martin electric turret and simulates many of the conditions experienced in actual combat has been developed by engineers of the Martin Company, world's largest manufacturer of power-driven turrets, and is now being used to train aerial gunners for the Army Air Forces.

Originally developed at the request of Army engineers, the new stand was designed, approved, the first unit manufactured in the Martin Experimental De-



partment and shipped to the Army all within six weeks of the time the original inquiry was received. Seven additional units were manufactured and shipped in the next 12 days, with still other units following at record intervals.

Mounting a standard turret, the Martin designed stand provides a seat and controls for an instructor whereby he is able to control the movement both of a target airplane swinging on a wire and the "bomber" on which the turret is supposedly mounted. In this way, it is possible for the instructor to provide every imaginable combination of attacking maneuvers and evasive action.

★ ★ ★

Just Call Him High Pockets

Ted Woodward, Shipping Inspection, had the reputation of being the skinniest line sarge in the Army before his discharge last October. Six feet, three inches and weighing 124 pounds, Ted served as a sergeant in a machine-gun company in Alaska before his honorable discharge.

Pilots Learn Instrument Flying On Link Trainer at the Airport

IT had been a rough flight. Pilot George Van Vliet blinked several times at the bright lights as he crawled out of the cockpit. He looked tired, and rightfully so, for he had just completed a trip that was plenty stormy. Shortly after leveling off at about 2000 feet, high winds had started and it was so dark George couldn't see a bit of light except the one over his instrument panel. In fact, the entire flight, from take-off to landing had been on instruments alone.

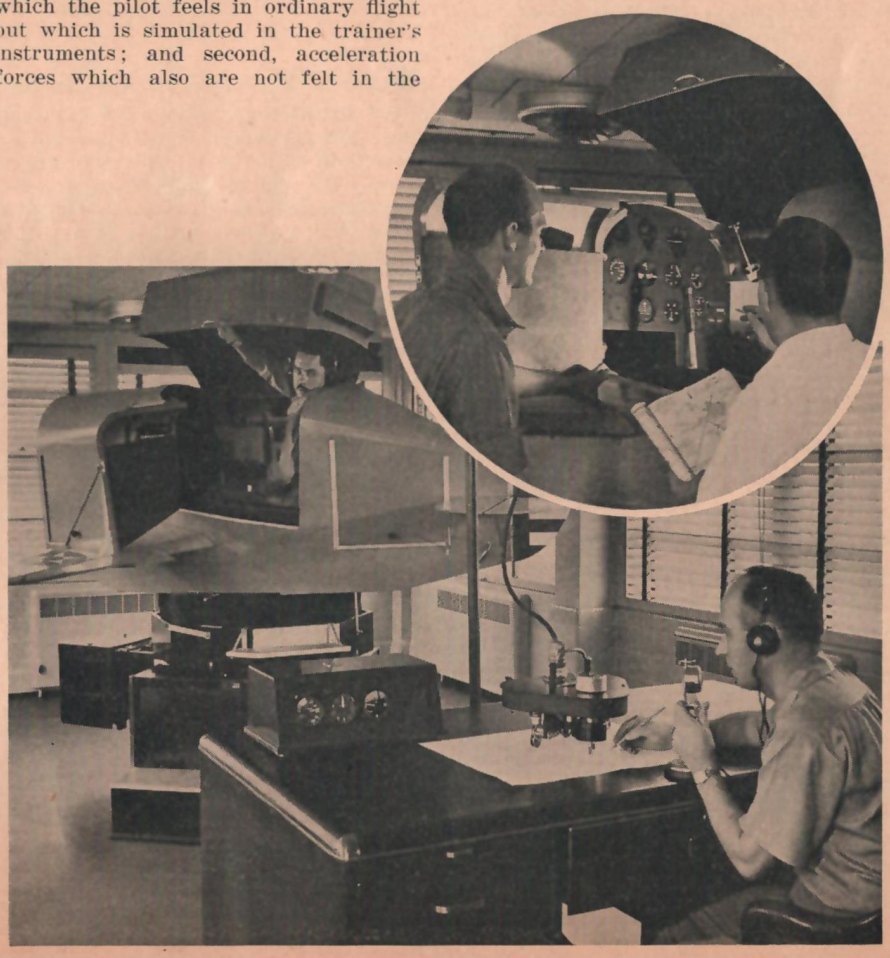
There was one redeeming feature about the flight, however, regardless of the wind, weather or come-what-may, George knew he was going to end up safe and sound back at the Martin Airport—for he had never left there! He was taking an instruction flight in the Link Trainer recently installed in the field's Administration building tower room.

This trainer is designed for one important purpose—to teach pilots to fly by instruments alone, and for this reason the cockpit is entirely enclosed so the pilot will have to fly in this manner. He is unable to rely on a visual reference with the ground or his sense of balance. He is unable to do any "feel" flying at all.

Robert Woody, instructor for all Martin pilots and the Army pilots stationed here, explains that there are two chief differences in flying the trainer and an actual plane. First is centrifugal force, which the pilot feels in ordinary flight but which is simulated in the trainer's instruments; and second, acceleration forces which also are not felt in the trainer but allowed for in instrument recording.

Instructions are individually prepared so each pupil will overcome his weaknesses. From his desk across the room. Woody can tell at a glance just what the pilot is doing, for he has a duplicate instrument board at the front of his desk connected directly with the pilot's, and in addition a triangular recording device which charts every move in the "sky path" over which the trainer travels. A two-way radio permits the instructor and pilot to converse at all times and allows Woody to give corrective instructions and practice maneuver directions to the pilot. Practically all the training is carried on in exactly the same manner as if the pilot was fifty or more miles from the airport instead of a few feet across the room.

"The trainer has been a remarkable development in pilot training," Mr. Woody said, "because of its advantages over instrument training in an actual plane. It simulates actual instrument flying in teaching pilots to fly entirely by readings and indications on the instruments without any hazards of actual flight; it simulates "rough air," icing conditions, etc.; and it teaches radio orientation and navigation for training in instrument flying also instrument take-offs, let-downs, and low approaches."



With Pilot Frank Hoffman, Instructor Robert L. Woody checks the two-way radio equipment between the Link Trainer and his desk, before he closes the cockpit and gives the "switch on" signal to start the instrument instruction flight. (In circle)—Every pilot in the course is given a thorough explanation of the instruments on the panel and other equipment of the Link Trainer. Here George Von Vliet receives instrument reading instructions from Instructor Robert Woody.

Paratrooper Prof. Calls U. S. Equipment Best In the World

MAJOR Harry "Tug" Wilson, of the Army Air Forces Materiel Command—the nation's foremost professor of paratrooping—believes American paratrooper equipment, from 'chutes to static lines, is the best in the world.

"The Materiel Command works constantly to improve existing equipment which in many cases is years ahead of our enemies," the Oakland, Calif., man declares. "American paratroopers are the best equipped in the world."

Major Wilson should know. A veteran of more than 200 leaps, the 49-year-old officer recently returned from a tour of duty with some of his former pupils in Italy. Always a student of tactics and equipment, the major wanted to see if he could discover new tactics or suggestions for new equipment.

Wherever parachutists gather, Major Wilson has friends, probably several former pupils, for he has taught more men to jump than any living American.

In First Mass Jump

In 1928, Major Wilson and nine other men jumped successfully from an Army transport over Chanute Field, Ill., the first mass parachute jump in world history. Thus was the groundwork for the modern paratroopers laid.

In 1940, he supervised the training of the first experimental paratrooper battalion at Fort Benning, Ga., the nation's first paratrooper school. Many Wilson pupils of succeeding classes jumped into Normandy on D-Day.

Supplies, arms and ammunition for the two divisions of these grim fighting men dropped from the skies in aerial containers designed by Major "Tug." These opened in one jerk as hurrying troopers grabbed their contents.

American paratroopers use the standard three-point release harness from preference, the major explained. "We operated on the principle that volunteer paratroopers should get what they wanted," he said, speaking of the Fort Benning training school. "They preferred the three-point harness, which best fits the wearer's body.

"When you're up there jumping thousands of feet through the air, you are inclined to be conservative about changes in the mechanism by which you reach safety," Wilson continued in reference to comment on the quick release, or one-point, harness standard in the RAF and supplied to AAF airmen who prefer it.

Only Advantage in Water

"I can see no advantage to the one-point harness, except possibly for landing in water. Even then, I think, the three-point harness does not handicap the jumper much. Personally, I would have no fear of being drowned before I could release myself from a three-point harness."

Actually fear just doesn't enter the major's mind in connection with parachutes. He made his first jump in 1912 from a smoke-filled balloon over an Oakland, Calif., county fair.

Instead of a scientific harness, he sat astride a cross bar.

★ ★ ★

B-26 Pilots Adopt Orphans

Six British war orphans got new daddies when Marauder combat crews raised more than $2,400 to insure the future of these boys and girls, all from London. The adoptions call for extra clothing, extra food, a yearly holiday at a health resort and $80 each year for five years for the children. All these things were forgotten, though, when the youngsters visited the base and were given a ride around the perimeter track in a Marauder. To top things off they had a big dinner with real fried eggs at the Officers' Mess.

The B-26 Marauder, fast Army medium bomber, has taken on new duties with the U. S. Navy. Known as the JM-1, it is being used as a target tow plane to sharpen the eyes of shipboard anti-aircraft gunners. Shown here are Navy technicians inspecting tow target reels prior to loading them aboard the plane. Official U. S. Navy photo.

THIS MONTH'S COVER

It's seldom quite as peaceful at the Martin Airport as it seems to be in the picture on this month's cover. What with final installations, ground testing, flight testing and the numerous other activities, the Airport is on the jump all day long and far into the night. But Photographer Lee Dougherty happened along at just the right minute and his camera recorded a moment of relaxation.

The drawing on the back cover is by John Gorsuch, Art Department, and is the first of a series picturing Martin planes—pictures uniform in size and reproduction, suitable for framing. The Mars will be on the back cover of the October STAR.

Commando Knives Made From Scrap

If Martin bombers don't get 'em from the air, maybe Martin knives will get 'em on the ground. No, The Glenn L. Martin Company hasn't gone in for manufacturing cutlery, but it is furnishing the material to a couple of men who are making wicked-looking rippers for the armed forces.

Steel files which have been worn down, and the blades of band-saws broken in the Martin plant, are being fashioned into razor-sharp commando knives by two Pennsylvanians, who, in their spare time, have already made more than 700 of the weapons, and distributed them among fighting men on all the battle fronts.

Floyd Snyder, of Center Hall, makes

Frank A. Keller

his knives from worn files, while Don. M. Hutchinson, of State College, fashions his from broken band-saws. The former has made more than 200 while Hutchinson has made and distributed over 500. Snyder made his first knife for his son, Skeetz, who is in the Navy, but Hutchinson, a guard at the Rockview Prison, made his first after his 18-year-old son, Don. Jr., had been killed in the South Pacific.

The scraps of steel from the Martin Plant reach the two craftsmen through Frank A. Keller, Production, a friend and neighbor of Snyder and Hutchinson. He made arrangements for taking the metal to the Pennsylvanians when he learned that they could not obtain the needed materials at their home towns.

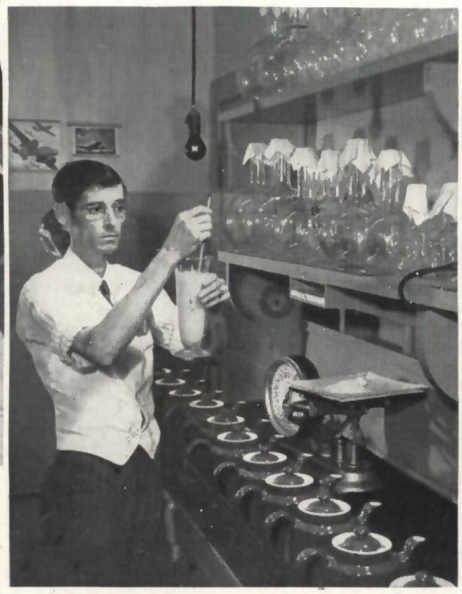
The two most recently made knives are on their way to two combat-flying brigadier generals who do their bombing missions over Europe in B-26 Marauders; Samuel E. Anderson, of Greensboro, N. C., and Herbert E. Thatcher, of Chevy Chase, Md., said to one of the most decorated brigadiers in the Army Air Forces.

"MODERN TINTYPES"

Millions of forms, pictures and posters required annually in the building of Martin bombers are turned out by the Photo Reproduction Department in the basement of the Engineering Building. One of the most important functions, however, is making "Modern Tintypes," drawings on metal or photo templates, which have all but replaced blueprints in the shop. These templates are a Martin development and are made in much the same manner as photographs by projecting the drawings on sensitized metal sheets. Printed to exact size, they are used for many purposes formerly requiring blueprints and fabricated parts may be checked directly on the photo drawing. The various jobs performed by Photo Reproduction are not only helping speed the making of bombers but are making work in the shop easier and more accurate. The most important reproduction jobs are shown on this page.

Forms, posters, booklets and other miscellaneous printed matter are the products of the multilith section, where presses are constantly humming. John Granovski, Mary Ranzino, Bernice Burke, Joseph Friedel and Henry Doll keep tab on their work.

Checking photo templates are Janet Balliet, John Startt, John Kelly, Jr., and Richard Coster.

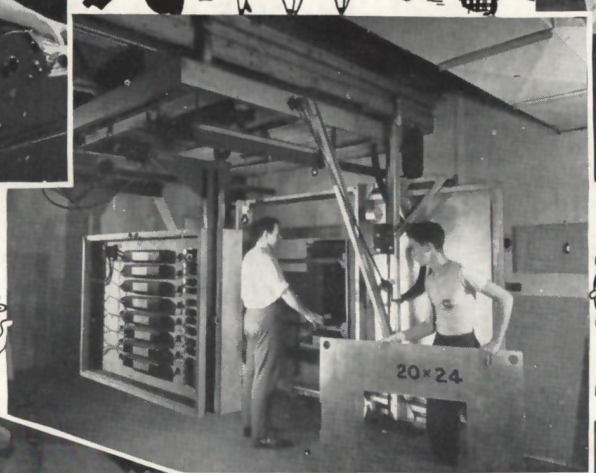


Chemicals must be carefully and exactly prepared. Rufus McDuffy, chief chemist, checks a mixture.

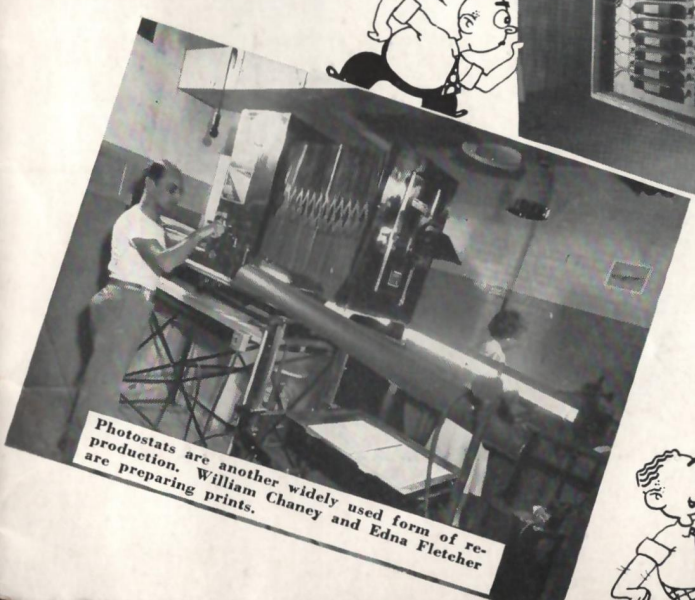
Despite the inroads of metal templates, millions of square feet of blueprints are still needed. These are being made by Ada Rothenberg, Charlotte Keene, Brent Fletcher and Charles LaRue.

A bank of ditto machines accounts for many of the forms needed. Catherine Betz, Flora Rhodes, Dorothea Wills, Evelyn Winkler and Dorothy Weidner keep 'em pouring out endlessly.

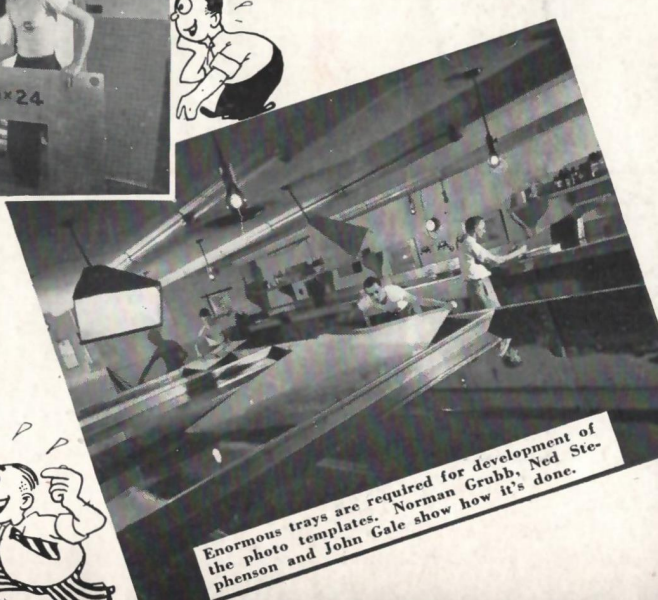
In the second reproduction section, Ann Windish and Adele Karczeski operate the Ozalid machine.



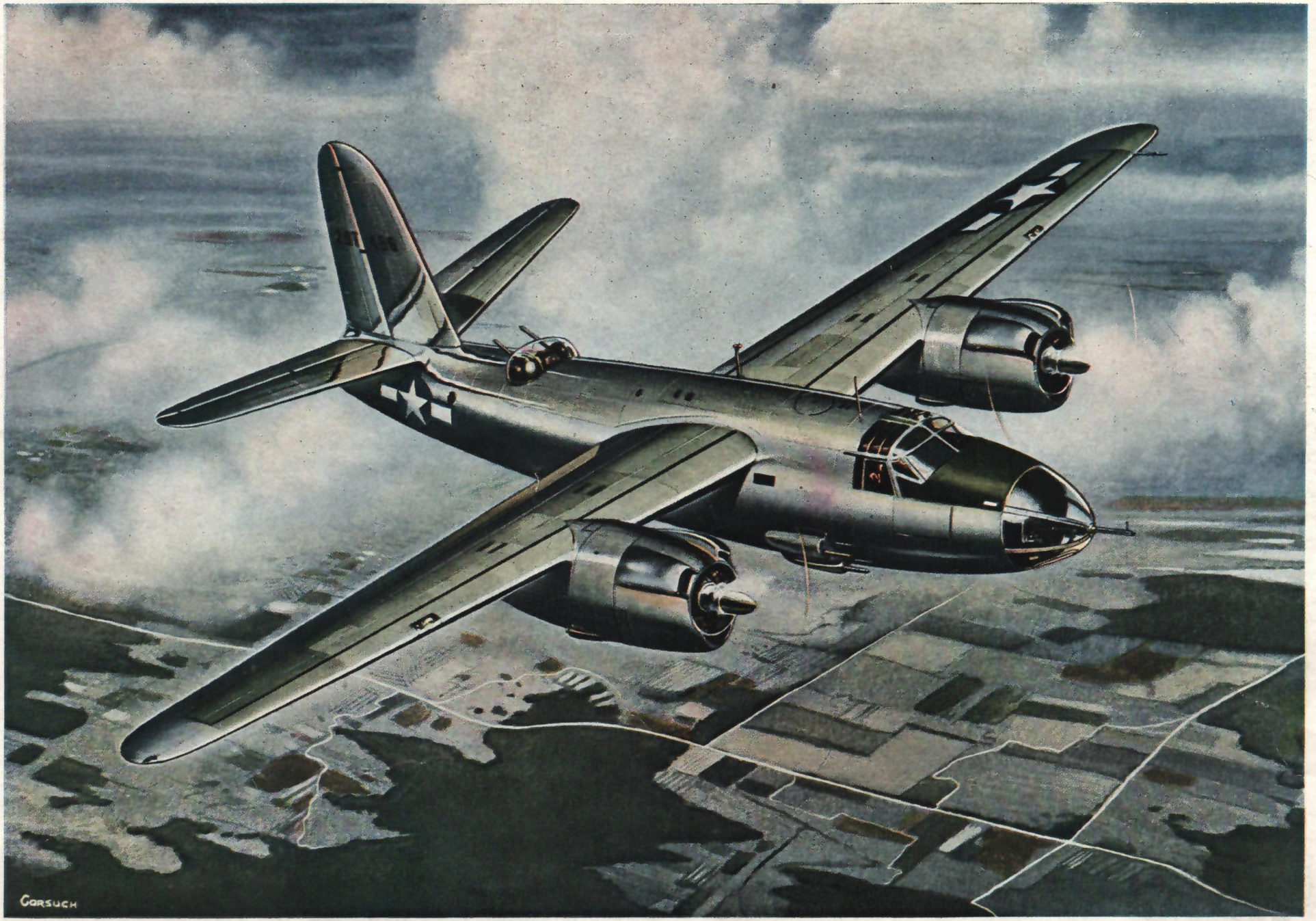
One of the enormous cameras on which photo templates are made. It fills two rooms and is here being operated by Joseph Wilkinson and Norman Grubb.



Photostats are another widely used form of reproduction. William Chaney and Edna Fletcher are preparing prints.



Enormous trays are required for development of the photo templates. Norman Grubb, Ned Stephenson and John Gale show how it's done.



The Martin **B-26** *Marauder*